

The Review Review

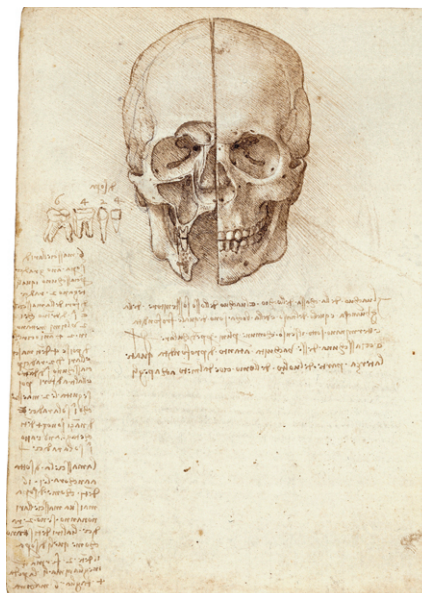
LEONARDO DA VINCI: ANATOMIST

The Queen's Gallery, Buckingham Palace,
4 May – 7 October 2012.

Da Vinci's most penetrating anatomical studies began in 1506 with his dissection of a 100-year-old man, whose peaceful death he had just witnessed. His earlier dissections and drawings were of animals – oxen, horses, a bear, and birds – and many of his first human images were anatomically inaccurate representations of received wisdom about the structures, functions, and connections of the human body. He acquired his first human skull in 1489, and the works displayed in this impeccably curated and beautifully presented exhibition take us up to 1513, during which time he dissected around 30 corpses. His anatomist friend and guide, Professor Marcantonio della Torre, died of plague in 1511, and 2 years later da Vinci dropped his great anatomical project. His wonderful drawings and notes went unpublished and undiscovered for centuries.

As an artist, sculptor, and engineer, da Vinci wanted to know not only how the body was constructed and how it worked, but also where the emotions came from and how they were expressed. His meticulous dissections and drawings of muscles, nerves, and vessels reflected the engineer in him, but he struggled to move on from ancient notions of bodily functions, although his painstaking empirical work got him there in the end. He discovered that the humours did not reside in three cerebral ventricles, that the heart, not the liver, was at the core of the blood system, and was the first to describe atherosclerosis and hepatic cirrhosis. He used molten wax to define the anatomical cerebral ventricles, and made a model glass aorta to study the flow of blood across the aortic valve, using water containing grass seeds to observe patterns of flow. He described the coronary sinuses almost 200 years before Valsalva gave them his name, and, 120 years before Harvey, was surely only a heartbeat away from grasping the idea of the circulation of the blood.

As well as being a matchless draughtsman, da Vinci must have been an extremely skilled dissector; his post-mortem material was not chilled, embalmed, or fixed, and fine dissection of

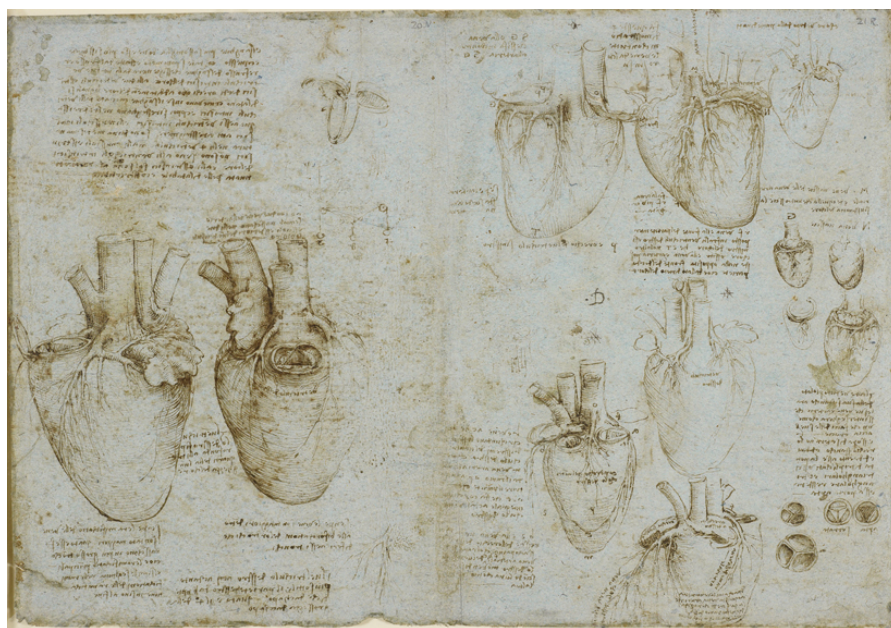


A skull sectioned, 1489. Leonardo da Vinci: Anatomist. The Royal Collection ©2011, Her Majesty Queen Elizabeth II.

the brain and other soft tissues must have been a huge challenge. There are few, if any, drawings of the internal appearances of organs such as the kidneys, liver, spleen, and gut, perhaps for that reason.

His extensive annotations, in his unique 'mirror writing' (he was left-handed and all his script was laterally inverted), combined with the lovely ink drawings, make each

Studies of the coronary vessels and valves of the heart, c.1511–1513. Leonardo da Vinci: Anatomist. The Royal Collection ©2011, Her Majesty Queen Elizabeth II.



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page of his priceless folio a thing of great beauty. Why he never published this material is a mystery. I had understood that dissection, even of executed criminals, was frowned upon, and that he had to hide his notebooks, but the senior curator of the exhibition, Martin Clayton, is clear that dissection was not opposed by the Church. When da Vinci returned to Rome he was accused of 'unseemly conduct' (and perhaps witchcraft) and ceased his anatomical studies. The world had to wait a generation before Vesalius published his definitive account of human anatomy in *De humani corporis fabrica* in 1543.

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